Lloyd's Register

Rules and Regulations for the Classification of Special Service Craft, July 2010

Notice No. 7

Effective Date of Latest Amendments:

See page 1

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RULES AND REGULATIONS FOR THE CLASSIFICATION OF SPECIAL SERVICE CRAFT, *July 2010*

Notice No. 7

This Notice contains amendments within the following Sections of the *Rules and Regulations for the Classification of Special Service Craft, July 2010.* The amendments are effective on the dates shown:

Part	***Chapter***	***Section***	***Effective date***
1	3	2	1 July 2011
9	2	2	1 July 2011
10	1	1, 2, 7, 11, 13, 14	1 July 2011

It will be noted that the amendments also include corrigenda, which are effective from the date of this Notice.

The *Rules and Regulations for the Classification of Special Service Craft, July 2010* are to be read in conjunction with this Notice No. 7. The status of the Rules is now:

Rules for Special Service Craft	Effective date:	July 2010
Notice No. 1	Effective date:	1 January 2011
Notice No. 2	Effective date:	1 January 2011
Notice No. 3	Effective date	1 February 2011
Notice No. 4	Effective date	1 July 2011
Notice No. 5	Effective date	1 July 2011
Notice No. 6	Effective date	1 July 2011 & Corrigenda
Notice No. 7	Effective date	1 July 2011

Part 1, Chapter 3

Periodical Survey Regulations for Service Craft

Effective date 1 July 2011

■ *Section 2*
Annual Surveys - Hull and machinery requirements

2.2 Annual surveys

2.2.16 For craft fitted with an electronically controlled engine for main propulsion, essential auxiliary or emergency power purposes, the following is to be carried out to the satisfaction of the Surveyor:

(a) Verification of evidence of satisfactory operation of the engine and, where possible, this is to include a running test under load;

(b) Verification of satisfactory operation of the safety devices and control, alarm and monitoring systems; and

(c) Verification that any changes to the software or control, alarm, monitoring and safety systems that affect the operation of the engine have been assessed by LR and are under configuration management control.

Existing paragraphs 2.2.16 *and* 2.2.17 *to be re-numbered* 2.2.17 *and* 2.2.18.

Part 9, Chapter 2

Surveys During Construction, Installation and Sea Trials

Effective date 1 July 2011

■ *Section 2*
Diesel engines

2.2 Engine type testing

2.4.3 Wherever practical, type tests are to be conducted with the engine control systems operational in the approved configuration, *see* Pt 10, Ch 1,2.1.5 and 2.1.6. Configuration management documents are to be reviewed at testing for validity and referenced in the type test report.

Existing paragraphs 2.4.3 to 2.4.5 *to be re-numbered* 2.4.4 *to* 2.4.6.

Part 10, Chapter 1

Diesel Engines

Effective date 1 July 2011

Section 1
General requirements

1.5 Engine type testing

1.5.1 ~~New engine types or developments of existing types are to be subjected to an agreed programme of type testing to complement the design appraisal and review of documentation. The programme will need to include short term high power operation where applicable.~~ Engines are to be subjected to type testing in accordance with Pt 9, Ch 2,2.4.

Section 2
Particulars to be submitted

2.1 Plans and information

(Part only Shown)
2.1.1 At least three copies of the following plans are to be submitted for consideration:

- ~~The specification for a mass produced engine including manufacturing processes and quality control procedures, *see* 10.1.4 and 10.2.3.~~
- Additionally, for mass produced engines:

(a) For consideration of an engine type to be approved:
  (i) Engine specification, *see* 11.1.4.
  (ii) Manufacturing processes and quality control information, *see* 11.2.3.
  (iii) List of sub-contractors for main parts.
  (iv) Procedures for configuring during commissioning.
(b) For engines of an approved type to be installed on a craft, a compliance and inspection certificate, *see* 11.4.

- For engine control, alarm monitoring and safety systems, the plans and information required by Pt 16, Ch 1,1.2.
- For electronically controlled engines, the plans and information required by 13.2.

~~*2.1.6* Where engines incorporate electronic control systems, a failure mode and effects analysis (FMEA) is to be submitted to demonstrate that failure of an electronic control system will not result in the loss of essential services for the operation of the engine and that operation of the engine will not be lost or degraded beyond an acceptable performance criteria of the engine. This is concerned with the functioning of the control system and not failure of the software itself.~~

Existing paragraph 2.1.4 to be re-numbered 2.1.6.
Existing paragraph 2.1.5 to be re-numbered 2.1.4.
Existing paragraph 2.1.7 to be re-numbered 2.1.5.
Existing paragraph 2.1.8 to be re-numbered 2.1.7.

Section 7
Starting arrangemtns

7.5 Electric starting arrangements

7.5.4 Engine starting batteries are to be used only for the purposes of starting the engines and for the engines' own control, alarm, monitoring and safety arrangements. Means are to be provided to ensure that the stored energy in the batteries is maintained at a level required to start the engines as defined in 7.5.1 and 7.5.3.

7.6 Starting of the emergency source of power

7.6.6 ~~Engine starting batteries are to be used only for the purposes of starting the engines and for the engines' own monitoring arrangements.~~ Electric starting arrangements are to also satisfy 7.5.2 to 7.5.5.

7.7 Engine control, alarm monitoring and safety system power supplies

7.7.1 Power supplies are to be arranged so that power for electrically powered control, alarm monitoring and safety systems required for engine starting and operation will remain available in the event of a failure. Power is to remain available to permit starting attempts for the number of starts specified by this Section for each source of stored energy.

7.7.2 Where adequate battery and charging capacity exists, an engine starting battery may be used as one source of electrical power required by 8.6.1 .

7.7.3 An alarm is to be activated in the event of failure of a power supply and, where applicable, low battery charge level. Manual power supply changeover facilities are permitted.

Section 11
Mass produced engines

11.2 Procedure for approval of mass produced engines

~~*11.2.2* For the approval of a mass produced engine type, the manufacturer is to submit, in addition to the plans and particulars required by Chapter 2, a list of subcontractors for main parts.~~ For the approval of a mass produced engine type, the manufacturer is to submit:

(a) The plans and particulars required by 2.1 for assessment;
(b) As necessary, information to assess compliance with Section 4;
(c) A list of subcontractors for main parts; and
(d) Control, alarm monitoring and safety system configuration procedures, *see* 11.4.2.

11.2.5 LR reserves the right to limit the duration of validity of approval of a mass produced engine. LR is to be informed, without delay, of any change in the design of the engine, including changes to the software and control, alarm monitoring or safety systems, in the manufacturing or quality, ~~in the manufacturing or~~ control processes, in the selection of materials or in the list of subcontractors for main parts.

11.4 Compliance and inspection certificate

11.4.2 The certificate is to include reference to the manufacturer's procedures to be followed during commissioning for configuring control, alarm monitoring and safety systems for multi-purpose engines or other engine types that require parameters and settings to be adjusted for the intended application.

11.5 Type test conditions

11.5.3 The type tests are to be conducted with the engine control systems operational in the approved configuration, *see* 2.1.5 and 2.1.6. Configuration management documents are to be reviewed at testing for validity and referenced in the type test report.

Existing paragraphs 11.5.3 to 11.5.11 *to be re-numbered* 11.5.4 *to* 11.5.12.

11.5.~~10~~11 For engines that are required to be approved for different purposes (multi-purpose engines), and that have different performance~~s~~ profiles and control, alarm monitoring and safety systems configurations for each purpose, the programme and duration of test is to be modified to cover the whole range of the engine performance, taking into account the most severe conditions and intended purpose(s).

■ *Section 13*
Electronically controlled engines

13.1 Scope

13.1.1 ~~The requirements of this Section are applicable to engines for propulsion, auxiliary or emergency power purposes with software based electronic control of fuel injection timing and duration, and which may also control air or exhaust systems.~~The requirements of this Section are applicable to engines for propulsion, auxiliary or emergency power purposes with programmable electronic systems implemented and used to control fuel injection timing and duration, and which may also control combustion air or exhaust systems. The requirements of this Section also apply to programmable electronic systems used to control other functions (e.g. starting and control air, cylinder lubrication, etc.) where essential for the operation of the engine.

13.1.2 These engines may be of the slow, medium or high-speed type. They generally have no direct camshaft driven fuel~~, air or exhaust~~ systems, but have common rail fuel/hydraulic arrangements and may have hydraulic actuating systems for the functioning of the ~~air or~~ exhaust systems.

13.1.3 The operation of these engines relies on the effective monitoring of a number of parameters such as crank angle, engine speed, temperatures and pressures using ~~one or more electronic control systems~~ programmable electronic systems to provide the services essential for the operation of the engine such as fuel injection, air inlet, exhaust and speed control.

13.1.4 ~~Deviation from Rule requirements are to be submitted and will be considered on the basis of technical justification by the engine builder.~~ Details of proposals to deviate from the requirements of this Section are to be submitted and will be considered on the basis of a technical justification produced by the Enginebuilder.

13.1.5 ~~During the life of the engine any changes to hardware, software, control and monitoring systems which may affect the safety and reliable operation of the engine are to be submitted and approved by LR.~~ Each engine is to be configured for the specified performance and is to satisfy the relevant requirements for propulsion, auxiliary or emergency engines.

13.1.6 During the life of the engine details of any proposed changes to control, alarm, monitoring or safety systems which may affect safety and the reliable operation of the engine are to be submitted to LR for approval.

13.2 Plans and particulars

13.2.1 In addition to the plans and particulars required by Section 2 the following information is to be submitted:

(a) A general overview of the operating principles, supported by schematics explaining the functionality of individual systems and sub-systems. The information is to relate to the engine capability and functionality under defined operating and emergency conditions such as recovery from a failure or malfunction, with particular reference to the functioning of ~~electronic control~~ programmable electronic systems and any sub-systems. The information is also to indicate if the engine has different modes of operation, such as to limit exhaust gas emissions and/or to run under an economic fuel consumption mode or any other mode that ~~can be~~ is eletronically controlled ~~by electronic control systems~~.

~~(b) Details of hydraulic systems for actuation of sub-systems (fuel injection, air inlet or exhaust), to include details of the design/construction of pipes, pumps, valves, accumulators and the control of valves/pumps. Details of pump drive arrangements are also to be included.~~

(b) Operating manuals which describe the particulars of each system and, together with maintenance instructions, include reference to the functioning of sub-systems.

(c) ~~Failure Modes and Effects Analysis (FMEA)~~ A risk-based analysis, electronic and programmable electronic of the mechanical, pressure containing and electrical systems and arrangements that support the operation of the engine. The analysis is to demonstrate that suitable risk mitigation has been achieved ~~so that a system will tolerate a single failure in equipment or loss of an associated sub-system such that operation of the engine will not be lost or degraded beyond acceptable performance criteria of the engine. *See* 13.5~~ in accordance with 13.3.

(d) ~~A schedule of testing and trials to demonstrate that the engine is capable of operating as described in the design statement, and any testing required to verify the conclusions of the FMEA. The schedule is to include integration tests to verify that the response of the complete mechanical, hydraulic and electronic system is as predicted for all intended operational modes. The scope of these tests shall be agreed with LR for selected cases based on the FMEA required in (c).~~ Details of hydraulic systems for actuation of subsystems (fuel injection or exhaust), to include details of the design/construction of pipes, pumps, valves, accumulators and the control of valves/pumps. Details of pump drive arrangements are also to be included.

~~(e)~~ ~~Operating manuals which describe the particulars of each system and, together with maintenance instructions, include reference to the arrangements for making modifications and changes to electronic control systems and for the functioning of sub-systems.~~

~~(f)~~(e) Quality plan for sourcing, design, installation and testing of all components used in the oil fuel and hydraulic oil systems installed with the engine for engine operation.

~~(g)~~(f) Fatigue analysis for all high pressure oil fuel and hydraulic oil piping arrangements required for engine operation where failure of the pipe or its connection or a component would be the cause of engine unavailability. The analysis is to concentrate on high pressure components and sub-systems and recognise the pressures and fluctuating stresses that the pipe system may be subject to in normal service.

~~(h)~~ ~~Schedule of testing at engine builders, pre-sea trial commissioning and sea trials. The test schedules are to identify all modes of engine operation and the sea trials are to include typical port manoeuvres under all intended engine operating modes.~~

~~(i)~~(g) Evidence of type testing of the engine with ~~controls~~ the programmable electronic system, or a proposed test plan at the engine builders with the programmable electronic ~~controls~~ system functioning, to verify the functionality and behaviour under all operating and fault conditions of the programmable electronic ~~control~~ system.

(h) Schedule of testing at engine builders, pre-sea trial commissioning and sea trials. The test schedules are to identify all modes of engine operation and the sea trials are to include typical port manoeuvres under the intended engine operating modes. The schedule is to include:
  (i) testing and trials to demonstrate that the engine is capable of operating as described in (a);
  (ii) tests to verify that the response of the complete mechanical, hydraulic, electrical and electronic system is as predicted for the intended operational modes; and
  (iii) testing required to verify the conclusions of the risk-based analysis.

The scope of these tests is to be agreed with LR.

13.2.2 In addition to the applicable plans and particulars required by Pt 16, Ch 1,1.2.3 to 1.2.6, the following information for control, alarm, monitoring and safety systems relating to the operation of an electronically controlled engine is to be submitted:

~~(a)~~ ~~System requirements specification.~~
~~(b)~~ ~~Description of operation with explanatory diagrams.~~
~~(c)~~ ~~Line diagrams of control circuits.~~
~~(d)~~ ~~List of monitored points.~~
~~(e)~~ ~~List of control points.~~
~~(f)~~ ~~List of alarm points.~~
~~(g)~~ ~~List of safety functions and details of any overrides, including consequences of use.~~
~~(h)~~ ~~Details of hardware configuration.~~
~~(j)~~ ~~Hardware certification details.~~
~~(k)~~ ~~Software quality plan.~~
~~(l)~~ ~~System integration plan.~~
~~(m)~~ ~~Failure Mode and Effects Analysis (FMEA). *See* 2.1.6.~~
~~(n)~~ ~~Factory acceptance, integration, harbour and sea trials/test schedules for hardware and software.~~
~~(o)~~ ~~Software certification details.~~
~~(p)~~ ~~Quality plan for sourcing, design installation and testing of all components used in the control, alarm, monitoring and safety systems installed with the engine for engine operation.~~
(a) Engine configuration details, *see* 13.5.2;
(b) Software quality plans, including configuration management documents;
(c) Software safety evidence; and
(d) Software assessment inspection report.

13.3 Risk-based analysis

13.3.1 An analysis is to be carried out in accordance with relevant standards acceptable to LR to demonstrate compliance with the applicable requirements of this sub-Section appropriate to the engine application. The analysis is to be a risk-based consideration of engine operation and craft and personnel safety, and is to demonstrate adequate risk mitigation through fault tolerance and/or reliability in accordance with the specified criteria in 13.3.2 to 13.3.4 relevant to the engine application.

13.3.2 For craft with a single main propulsion engine, a Failure Mode and Effects Analysis (FMEA), or alternative recognised analysis of system reliability, is to be carried out and is to demonstrate that an electronic control system failure:
(a) will not result in the loss of the ability to provide the services essential for the operation of the engine, *see* Pt 16, Ch 1,2.5.11 and 2.12.2;
(b) will not affect the normal operation of the services essential for the operation of the engine other than those services dependent upon the failed part, *see* Pt 16, Ch 1,2.13.4 and 2.13.5; and
(c) will not leave either the engine, or any equipment or machinery associated with the engine, or the craft in an unsafe condition, *see* Pt 16, Ch 1,2.3.12, 2.4.6, 2.5.5, 2.10.3, 2.10.4 and 2.13.5.

13.3.3 A risk-based analysis is to be carried out for:
(a) main engines on craft with multiple main engines or other means of providing propulsion power; and/or
(b) auxiliary engines intended to drive electric generators forming the craft's main source of electrical power or otherwise providing power for essential services.

The analysis is to demonstrate that adequate hazard mitigation has been incorporated in electronically controlled engine systems or the overall craft installation with respect to personnel safety and providing propulsion power and/or power for essential services for the safety of the craft. Arrangements satisfying the criteria of 13.3.2(a) to (c) will also be acceptable.

13.3.4 For engines for emergency power purposes, a risk-based analysis is to be carried out to demonstrate that the design incorporates adequate hazard mitigation, such that the likelihood of an electronic control system failure, resulting in the loss of the ability to provide emergency power when required, has been reduced to a level considered acceptable by LR, and that means are provided to detect failures and permit personnel to restore engine availability to operate on demand. Failures which would result in engine failure and/or damage or loss of availability are to be identified, and the report is to include documentation of:

(a) component reliability evidence;
(b) failure detection and alarms; and
(c) failure response required to restore engine availability and maintain personnel safety.

13.3.5 The risk-based analysis report is to:

(a) Identify the standards used for analysis and system design;
(b) Identify the engine, its purpose and the associated objectives of the analysis;
(c) Identify any assumptions made in the analysis.;
(d) Identify the equipment, system or sub-system, mode of operation and the equipment;
(e) Identify potential failure modes and their causes.
(f) Evaluate the local effects (e.g. fuel injection failure) and the effects on the system as a whole (e.g. loss of propulsion power) of each failure mode;
(g) Identify measures for reducing the risks associated with each failure mode (e.g. system design, failure detection and alarms, redundancy, quality control procedures for sourcing, manufacture and testing, etc.); and
(h) Identify trials and testing necessary to prove conclusions.

13.3.6 At sub-system level, it is acceptable to consider failure of equipment items and their functions, e.g. Failure of a pump to produce flow or pressure head. It is not required that the failure of components within that pump be analysed, and failure need only be dealt with as a cause of failure of the pump.

Existing sub-Section 13.3 *to be re-numbered* 13.4.

~~13.4 Electronic control systems~~

~~*13.4.1* Plans and details of electronic control systems are to comply with Pt 16, Ch 1 and Ch 2 as applicable.~~

~~*13.4.2* For electronic control systems and electrical actuating systems, the quality plan for sourcing, design, installation and testing of components is to address the following issues:~~

~~(a) Standard(s) applied.~~
~~(b) Details of the quality control system applied during manufacture and testing.~~
~~(c) Details of type approval, type testing or approved type status assigned to the equipment.~~
~~(d) Details of installation and testing recommendations for the equipment.~~
~~(e) Details of any local and/or remote diagnostic arrangements where assessment and alteration of control parameters can be made which can affect the operation of the engine.~~
~~(f) Details of arrangements for software upgrades.~~

~~*13.4.3* The system integration plan is required to identify the process for verification of the functional outputs from the electronic control systems with particular reference to system integrity, consistency, security against unauthorised changes to software and maintaining the outputs within acceptable tolerances for safe and reliable operation of the engine within stated performance criteria.~~

~~13.5 FMEA analysis~~

~~*13.5.1* A Failure Mode and Effects Analysis (FMEA) is to demonstrate that a failure of the functioning of an electronic control system:~~

~~(a) Will not result in the loss of the ability to provide the services essential for the operation of the engine (*see* Pt 16, Ch 1,2.5.11 and 2.12.2);~~
~~(b) Will not affect the normal operation of the services essential for the operation of the engine other than those services dependent upon the failed part (*see* Pt 16, Ch 1,2.12.4 and 2.12.5); and~~
~~(c) Will not leave either the engine, or any equipment or machinery associated with the engine, or the ship in an unsafe condition (*see* Pt 16, Ch 1,2.3.12, 2.4.6, 2.5.5, 2.10.3 and 2.12.5).~~

~~*13.5.2* Where FMEA analysis is required to be carried out the reports submitted are to address the following issues:~~

~~(a) Identify the standards used for analysis and system design.~~
~~(b) Identify the objectives of the analysis.~~
~~(c) Identify any assumptions made in the analysis.~~
~~(d) Identify the equipment, system or sub-system, mode of operation and the equipment.~~
~~(e) Identify potential failure modes and their causes.~~
~~(f) Evaluate the local effects (e.g. fuel injection failure) and the effects on the system as a whole (e.g. loss of propulsion power) of each failure mode.~~
~~(g) Identify measures for reducing the risks associated with each failure mode. This may be through system design, provision of redundant systems and/or quality control procedures for sourcing, manufacture and testing.~~
~~(h) Identify trials and testing necessary to prove conclusions.~~

~~*13.5.3* At sub-system level it is acceptable to consider failure of equipment items and their functions, e.g. failure of a pump to produce flow or pressure head. It is not required that the failure of components within that pump be analysed, and failure need only be dealt with as a cause of failure of the pump.~~

~~*13.5.4* In an electronically controlled engine it is necessary to define the essential services on which the operation of the engine relies and the control functions, alarm functions and safety functions for the equipment and machinery providing these services. Examples of essential services are:~~

~~(a) Starting arrangements.~~
~~(b) Fuel supply arrangements.~~
~~(c) Lubricating oil arrangements.~~
~~(d) Hydraulic oil arrangements.~~
~~(e) Cooling arrangements.~~
~~(f) Power supply arrangements.~~

13.5 Control engineering systems

13.5.1 Control, alarm, monitoring, safety and programmable electronic systems are to comply with Pt 16, Ch 1 as applicable.

13.5.2 The engine control, alarm monitoring and safety systems are to be configured to comply with the relevant requirements (e.g. operating profile, alarms, shutdowns, etc.) of this Chapter and Pt 16, Ch 1 for an engine for main, auxiliary or emergency power purposes. Details of the engine configuration are to be submitted for consideration identifying:

(a) Local and remote means to carry out system configuration.
(b) Enginebuilder procedures for undertaking configuring.
(c) Roles and responsibilities for configuration (e.g. Enginebuilder, engine packager, system integrator or other nominated party) with accompanying schedule.
(d) Configurable settings and parameters (including those not to be modified from a default value).
(e) Configuration for propulsion, auxiliary or emergency engine application.

Configuration records are to be maintained and are to be made available to the Surveyor at testing and trials and on request in accordance with Pt 16, Ch 1,1.4 and 6.1.3.

13.6 Software

13.6.1 Software lifecycle activities are to be carried out in accordance with an acceptable quality management system, see Pt 16, Ch 1,2.10.21, 2.12.2 and 2.12.7.

13.6.2 Appropriate safety related processes, methods, techniques and tools are to be applied to software development and maintenance by the Enginebuilder. Selection and application of techniques and measures in accordance with Annex A of IEC 61508-3, *Functional safety of electrical/electronic/programmable electronic systems: Software requirements*, or other relevant standards or codes acceptable to LR, will generally be acceptable.

13.6.3 To demonstrate compliance with 13.6.1 and 13.6.2:

(a) software quality plans and safety evidence are to be submitted for consideration, *see* 13.2.2(b) and (c); and
(b) an assessment inspection of the Enginebuilder's completed development is to be carried out by LR. The inspection is to be tailored to verify application of the standards and codes used in software safety assurance accepted by LR.

■ *Section 14*

Program for trials for diesel engines to assess operational capability

14.1 Works trials (acceptance test)

14.1.2 For electronically controlled engines ~~integration tests are required, see 13.2.1(c).~~:

(a) works tests in accordance with 13.2.1(h); and
(b) verification of engine configuration, see 13.5.2, and that the approved software quality plans, including the software configuration management process, are being applied.

14.2 ~~Shipboard~~ On board trials

14.2.1 After the conclusion of the running-in programme prescribed by the engine manufacturer, engines are to undergo ~~shipboard~~ on board trials as specified in Table 1.14.2. The scope of the trials is to be agreed between the LR Surveyor and the ~~Shipyard~~ Builder prior to testing.

14.2.2 Engines driving generators or important auxiliaries are to be subjected to an operational test for at least 4 hours. During the test, the set concerned is required to operate at its rated power for an extended period. It is to be demonstrated that the engine is capable of supplying 100 per cent of its rated power, and in the case of ~~shipboard~~ on board generating sets, account shall be taken of the times needed to actuate the generator's overload protection system.

14.2.4 Trials are to include demonstration of engine control, monitoring, alarm and safety system operation to confirm that they have been provided, installed and configured as intended and in accordance with the relevant requirements for main, auxiliary or emergency engines.

14.2.5 For electronically controlled engines:

(a) On board tests in accordance with 13.2.1(h); and
(b) verification of engine configuration, *see* 13.5.2, and that the approved software quality plans, including the software configuration management process, are being applied.

Existing sub-Sections 14.2.4 *and* 14.2.5 *are to be re-numbered* 14.2.6 *and* 14.2.7

Table 1.14.2 Scope of ~~shipboard~~ on board trials for diesel engines

(*Part only shown*)

Main engines driving fixed-pitch propellers (1) (2)		
Trial condition	Duration	Note
~~Monitoring~~ Control, Monitoring, alarms and safety systems	—	— Operation to be demonstrated
Single main engines solely driving generators for propulsion		
Trial condition	Duration	Note
~~Monitoring~~ Control, Monitoring, alarm and safety systems	—	— Operation to be demonstrated

Cross-references

Section numbering in brackets reflects any Section renumbering necessitated by any of the Notices that update the current version of the Rules for the Classification of Special Service Craft.

Part 1, Chapter 2

4.5.15	*Reference* 2.2.16 *now reads* 2.2.17 *Reference* 2.2.17 *now reads* 2.2.18

Part 10, Chapter 1

10.2.2	*Reference* 2.1.5 *now reads* 2.1.4
11.5.4 (now 11.5.5)	*Reference* 11.5.3 *now reads* 11.5.4 *Reference* 11.5.10 *now reads* 11.5.11 *Reference* 11.5.11 *now reads* 11.5.12
11.5.5 (now 11.5.6)	*Reference* 11.5.3 *now reads* 11.5.4
11.5.8 (now 11.5.9)	*Reference* 11.5.7 *now reads* 11.5.8
13.2.2(m)	*Reference* 2.1.6 *has been deleted as per notice*